Mortality and people with diabetes

Mortality data is organized and finalized by the Office of Data, Research, and Vital Statistics. These data follow a standard format. Two types of data sets are available for public use, one that lists only underlying cause of death and another listing multiple causes of death. The multiple cause of death file is what is used for this report.

The most recent mortality file available to us at the time of this report is for years 1995-1998. This file was constructed by Nancy Sonnenfeld, PhD in SAS. The file is not in standard form. The file has been modified with variables to categorize ages for standard populations and to code cause of death.

The file described above was imported into SPSS as a text delimited file. The original file format, including all recoded variables, was maintained. No missing records or import problems were reported.

Population files for years 1996-1998 were copied from a common file on the U:\ drive maintained by Kathy Tippy, MPH. Population files were subdivided into categories corresponding with standard population categories of 1940. These categories are 0 to 44 years of age, 45 to 64, 65 to 74, and 75+.

Standard population weights for the categories above, for populations 1940, 1970, and 1980, were entered into columns on an Excel spreadsheet for use in age adjusting results. Standard weights were retrieved from a report on age standardization from the National Vital Statistics Reports (Vol 47, Number 3) and from CDC Wonder.

The reason for analyzing these mortality data is to estimate trends in diabetes related mortality, with a focus on deaths due to major cardiovascular disease as an underlying cause with diabetes listed as contributing.

Mortality files use a field titled ACME to identify the underlying cause of death. The ACME field is an acronym standing for “Automated Classification of Medical Entities”. This field holds the result of a computerized algorithm resulting in a likely cause of death. The ACME field was searched as part of a selection process to extract records where the underlying cause of death was due to major CVD. Multiple cause of death files use an editing method by a computer program titled TRANSAX to eliminate any contradictions or duplication in coding. There are 20 fields assigned to the TRANSAX program that hold contributing causes of death. These fields were searched for any listing of ICD codes 250 with an underlying (ACME) cause of major CVD.

The U.S. Department of Health and Human Services publishes methods for determining rates corresponding with Healthy People 2010 objectives. The methodology outlined in Tracking Healthy People 2010 was followed to estimate the rate in Maine for Healthy People 2010 objective 5-7, “Reduce deaths from cardiovascular disease in persons with diabetes”. The measure is a rate and required to be calculated per 100,000 people and age adjusted to the standard 2000 population. The numerator for this objective is the number

of deaths due to major cardiovascular disorders (ICD codes 390-448), among persons who had diabetes listed (ICD codes 250) as a multiple cause of death.

The denominator is the number of people who report that they have ever been diagnosed with diabetes. Healthy People 2010 methodology calls for three-year averages of estimated rates for small sample sizes. Maine estimates rates of diagnosed diabetes using data collected through the BRFS survey. Sample sizes are small and therefore three-year averages are used. The most recent three-year data is from 1996-1998.

Analysis began by comparing our results against published results. The two benchmark data results were CDC Wonder and Maine Mortality Statistics published on the Bureau of Health website by the Office of Data, Research, and Vital Statistics.

Table 1: 1998 Mortality Rates for CVD (ICD 390-448) as Underlying Cause per 100,000 Population

Age	Population	Mortality	Crude Rate	Standard Pop	Adjusted Rate
0-44	784,597	81	10.324	7.185344833	7.185344833
45-64	276,508	468	169.254	34.86626065	34.86626065
65-74	93,381	898	961.652	58.6607554	58.6607554
75+	81,959	3,187	3888.530	143.8755963	143.8755963
total	1,236,445	4,634	**374.784**		244.59
CDC Wonder		4,664	374.70		242.5
ODRVS		4,632	372.30		

Table 1 shows a comparison between the three data sources. The three results are similar enough to show reliability on the methodology and data source. A similar table was constructed for diabetes as underlying cause of death. There are slight differences in the mortality counts that suggest the data file used at the DCP is different than the files used by both the CDC and ODRVS.

Table 2: Mortality Rates for Diabetes as Underlying Cause per 100,000 Population

Age	Population	Prevalence	Persons DM	Mortality	Crude Rate	Standard Pop	Adjusted Rate
0-44	784,597	0.009	7,061	13	1.657	0.696	1.153
45-64	276,508	0.057	15,761	64	23.146	0.206	4.768
65-74	93,381	0.113	10,552	82	87.812	0.061	5.357
75+	81,959	0.116	9,507	169	206.201	0.037	7.629
total	1,236,445		42,882	**328**	**26.528**		**18.907**
CDC Wonder				333	26.80		18.7
ODRVS				334	26.8		

To verify that the data file used at the DCP is the same as that used by ORDVS, a comparison between files of total deaths by year was made. Table 3 shows the results.

Table 3: Total counts by year

	1996	1997	1998
DCP File	11695	12292	12339
ORDVS	11695	11976	12067
+/-	0	316	272

The results shown in table 3 suggest that these are two different data sets. I have requested standard mortality data sets from ORDVS from 1996 through current to be certain that we have the same data set as is used for other mortality reports.